

## CLAIMS

1. An idle speed compensation system for a vehicle including an engine comprising:  
an idle speed control system that varies airflow to said engine at idle;  
5 a transmission driven by said engine; and  
a controller that communicates with said idle speed control system, said engine, and said transmission and that generates an idle speed compensation signal based on a transmission load.
2. The idle speed compensation system of claim 1 wherein said controller operates said idle speed control system based on said idle speed compensation signal.
3. The idle speed compensation system of claim 1 further comprising an engine speed sensor that communicates with said controller and that provides an engine speed signal, wherein said controller generates said idle speed compensation signal based on  
5 said engine speed signal.
4. The idle speed compensation system of claim 1 wherein said idle speed control system is an idle air controller.
5. The idle speed compensation system of claim 1 wherein said idle speed control system is an electronic throttle controller.
6. The idle speed compensation system of claim 1 wherein said transmission load is based on a transmission line pressure.

7. The idle speed compensation system of claim 1 wherein said controller generates said idle speed compensation signal from a look-up table.

8. The idle speed compensation system of claim 1 further comprising a transmission fault sensor that communicates with said controller.

9. The idle speed compensation system of claim 8 wherein when said transmission fault sensor senses a fault, said controller generates said idle compensation signal from a look-up table based on engine speed.

10. The idle speed compensation system of claim 9 wherein said fault is a transmission line pressure fault.

11. The idle speed compensation system of claim 9 wherein said fault is a transmission communication fault.

12. A method of adjusting engine idle speed comprising:  
sending a transmission load signal to a controller; and  
compensating an idle speed of an engine based upon said transmission load signal.

13. The method of claim 12 wherein said transmission load signal is based on transmission line pressure.

14. The method of claim 12 wherein said transmission load signal is based on a commanded transmission line pressure.

15. The method of claim 12 further comprising sending a compensation signal based on said transmission load signal and an engine speed to an idle speed control system of said engine.

16. The method of claim 15 wherein said compensation signal is determined from a look-up table based on said transmission load signal.

17. The method of claim 15 wherein said idle speed control system is an idle air controller.

18. The method of claim 15 wherein said idle speed control system is an electronic throttle controller.

19. A method of compensating engine idle speed comprising:  
determining a transmission load;  
determining an engine idle speed;  
determining an idle speed compensation signal based on at  
5 least one of said transmission load and said engine idle speed; and  
compensating said engine idle speed based upon said idle  
compensation signal.

20. The method of claim 19 wherein a look-up table is used to determine said idle compensation signal.

21. The method of claim 19 further comprising:  
determining whether a transmission fault is present; and  
using a compensation calibration signal based upon said engine  
idle speed to determine said idle compensation signal if said  
5 transmission fault is present.

22. The method of claim 21 wherein said transmission fault is a line pressure fault.

23. The method of claim 21 wherein said transmission fault is a transmission communication fault.

24. The method of claim 21 wherein said compensation calibration signal is determined from a look-up table.

25. The method of claim 19 wherein said transmission load is an actual transmission line pressure.

26. The method of claim 19 wherein said transmission load is a commanded transmission line pressure.